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IPW #



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicants: VIG et al.

Assignee: MagiQ Technologies, Inc.

Serial No.: 10/706,815

Filed: 11/12/2003

Art Unit No.: 2136

Examiner: Eleni A. Shiferaw

Title: Optical pulse calibration for  
quantum key distribution

Attorney Docket No. 029-03US1

Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

**CERTIFICATE OF MAILING (37 CFR 1.8a)**

I hereby certify that this correspondence is, on the  
date shown below, being deposited with the United  
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in an envelope addressed to:

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The Commissioner for Patents

PO Box 1450, Alexandria, Virginia,

22313-1450

  
Signature

Date: May 03, 2005

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Joseph E. Gortych

**AMENDMENT AND RESPONSE TO FIRST OFFICE ACTION**

This Amendment and Response is in reply to the first Office Action for the  
above-identified patent application (the "Application"), mailed by the Examiner on  
January 05, 2005.

**Power of Attorney**

Please find enclosed herewith a Power of Attorney appointing Joseph E.  
Gortych, Reg. No. 41,791. as Assignee's Authorized representative. Also enclosed  
herewith is a Statement Under 37 CFR 3.73(b).

**Extension of Time**

A Petition for a 1-month extension of time under 37 CFR 1.136(a)  
accompanies this Amendment and Response, with the appropriate (small-entity) fee  
as called for under 37 CFR 1.17(a)(2) being charged to the Assignee's deposit  
account.

## **Amendments**

Please amend the Application as follows:

### ***In the Drawings***

A corrected drawing sheet for Fig. 1 in compliance with 37 CFR 1.121(d) is provided as per the Examiner's helpful instructions. An extra copy of the corrected drawing sheet with the correction circled in red is provided for the Examiner's convenience.

### ***In the Specification***

Please amend the first paragraph of the "Background of the Invention" section of the Application as follows:

Quantum cryptography involves exchanging messages between a sender ("Alice") and a receiver ("Bob") by encoding a plain text message with a key that has been shared between the two using weak (e.g., 0.1 photon on average) optical signals (pulses) transmitted over a "quantum channel." Such a system is referred to as a quantum key distribution (QKD) system. The security of QKD systems is based on the quantum mechanical ~~principal~~ principle that any measurement of a quantum system will modify its state. As a consequence, an eavesdropper ("Eve") that attempts to intercept or otherwise measure the quantum signal will introduce errors into the transmitted signals, thereby revealing her presence. Because only the key is transmitted in a QKD system, any information about the key obtained by an eavesdropper is useless if no message based on the key is sent between Alice and Bob.